

Claims

1. A polymer dispersion, characterized in that it consists of the following components, based on the solids content of the product:

5 a) from 5 to 50%, preferably from 5 to 40% of starch with a degree of substitution (DS), relative to the cationic or anionic substituents, of from 0.01 to 1 and an intrinsic viscosity, when cationized and/or anionized, of >1.0 dl/g,

10 b) from 50 to 95%, preferably from 60 to 95%, of a monomer mixture comprising at least one vinyl monomer,

15 the film forming temperature of the polymer, which comprises these components, being from -50 to 200°C, preferably from 0 to 100°C, more preferably from 0 to 70°C and most preferably from 10 to 50°C, and

c) water.

2. The polymer dispersion according to claim 1, characterized in that the degree of substitution of the starch is from 0.04 to 1.0 and the intrinsic viscosity is from 1.5 to 15 dl/g.

20 3. The polymer dispersion according to claim 1 or 2, characterized in that the film forming temperature of the polymer formed from the monomer mixture is from 10 to 50°C, preferably from 20 to 50°C.

25 4. The polymer dispersion according to any one of claims 1 to 3, characterized in that the monomer mixture consists of from 40 to 70% of acrylates and from 30 to 60% of styrene.

30 5. The polymer dispersion according to any one of claims 1 to 3, characterized in that it consists of

from 5 to 50%, preferably from 5 to 40% of starch,

from 0 to 19% of acrylonitrile,

from 10 to 60% of acrylates and

from 10 to 60% of styrene,

and water.

35 6. The polymer dispersion according to claim 5, characterized in that it consists of

from 15 to 40%, preferably from 15 to 35% of starch,

from 5 to 19% of acrylonitrile,

from 20 to 50% of acrylates and

from 20 to 40% of styrene,

and water.

40 7. The polymer dispersion according to claim 1, characterized in that it consists of

20% of starch with a degree of substitution of about 0.05 and an intrinsic viscosity of from 3 to 15 dl/g,

19% of acrylonitrile,

30% of acrylates and
31% of styrene,
and water.

- 5 8. A process for producing the polymer dispersion according to claim 1, characterized in that a monomer mixture comprising at least one vinyl monomer is copolymerized in an aqueous solution of a starch, and the polymer thus formed has a film forming temperature of from -50 to 200°C, preferably from 0 to 100°C, more preferably from 0 to 70°C and most preferably from 10 to 50°C.
- 10 9. The process according to claim 8, characterized in that the starch is dissolved in an aqueous alkaline solution at a temperature of over 60°C.
- 15 10. The process according to claim 8, characterized in that during the polymerization, the temperature is from 70 to 90°C and the pH is below 7.
- 20 11. The process according to claim 8, characterized in that an anionized and/or a cationized starch is used.
12. The use of the polymer dispersion according to any one of the claims from 1 to 7 in paper manufacture.
- 25 13. The use of the polymer dispersion according to any one of the claims from 1 to 7 as a surface sizing additive for paper.
- 30 14. The use of the polymer dispersion according to any one of the claims from 1 to 7 as a wet- and dry-strengthener for paper which is added to the wet end of the paper machine.
15. The use of the polymer dispersion according to any one of the claims from 1 to 7 as a pulp size.